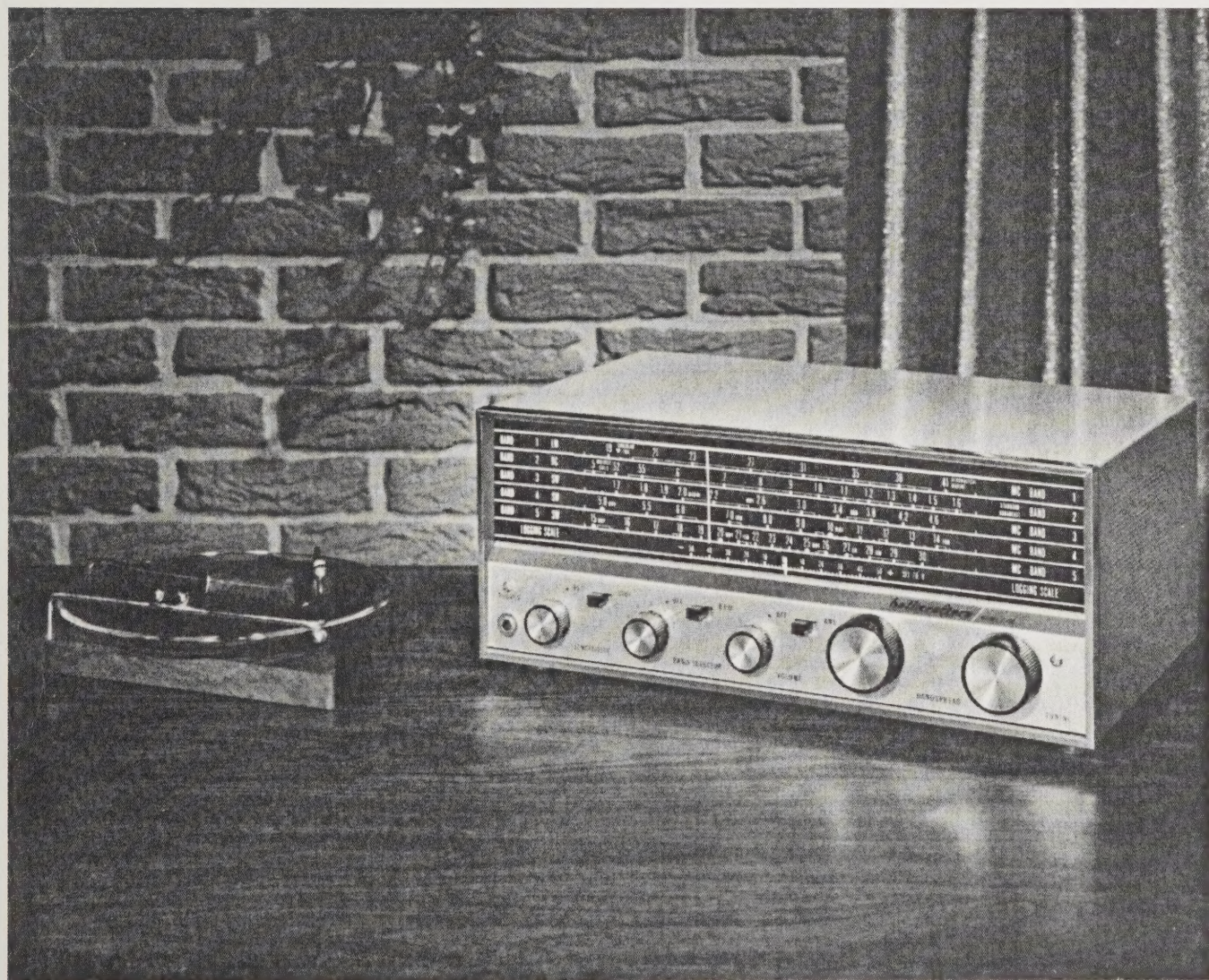




# *hallicrafters*

OWNERS GUIDE

MODEL S-118 MARK II  
FIVE BAND  
COMMUNICATIONS RECEIVE





## WARRANTY

"The Hallicrafters Company warrants its products to be free from defective material and workmanship and agrees to remedy any such defect or to furnish a new part in exchange for any part of any unit which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to our authorized radio dealer, wholesaler, from whom purchased, or, authorized service center, intact, for examination, with all transportation charges prepaid within ninety days from the date of sale to original purchaser and provided that such examination discloses in our judgment that it is thus defective.

This warranty does not extend to any of our radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extended to units which have been repaired or altered outside of our factory or authorized service center, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

Any part of a unit approved for remedy or exchange hereunder will be remedied or exchanged by the authorized radio dealer or wholesaler without charge to the owner.

This warranty is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio product."

*the hallicrafters co.*

156-001623

**NOTE:** Fill out and return immediately the enclosed  
**WARRANTY CARD.**

Record equipment information for future reference

### RECEIVER:

Model number \_\_\_\_\_

Serial number \_\_\_\_\_

Date purchased \_\_\_\_\_

Purchased from \_\_\_\_\_

### ACCESSORIES:

\_\_\_\_\_ # \_\_\_\_\_

\_\_\_\_\_ # \_\_\_\_\_

\_\_\_\_\_ # \_\_\_\_\_

For maximum enjoyment from your equipment . . . read your  
Owner's Guide before you start operating your receiver.

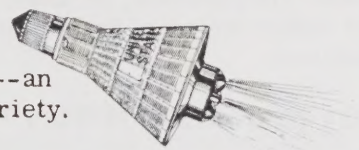
# GET SET FOR EXCITING ADVENTURES OUT OF THIN AIR... AS YOU TUNE IN THE WORLD ON YOUR *hallicrafters* COMMUNICATIONS RECEIVER

From the grim wilderness of a remote village in the central Congo, the voice of a missionary cries out, "Please hurry . . . we need help . . . there's no time . . . !



A hair's breadth away another voice--almost monotonous in its calm business-like, professional manner, booms in--"Charlie base, this is Air Force Zebra Two Nine Bravo . . . target bearing Zero-Three-Zero angels fifty-two . . . Roger, I have him in sight . . . "

From a bomber over the Aleutians to the darkest reaches of Africa . . . from a satellite in outer space to America's nuclear submarines . . . voices like these, the voices of modern pioneers of adventure, are yours to command with a twist of the dial, in your own living room!



This is the amazing world of Short Wave Listening--an exciting world, a serious world, a world of infinite variety.

Only by short wave radio can you become a witness to history as it occurs.

And only through short wave can you hear, in a single day, a Wagnerian opera from Heidelberg . . . a news broadcast from behind the iron curtain . . . and an airport control tower bringing in a crippled plane !



Every moment of every day and night, Short Wave brings into your home an absorbing new interest--a fascinating way to keep up with international affairs, to be informed and stay informed.

This book was prepared to give you a quick and thorough *Guided Tour* of Short Wave, and to help you enjoy more fully this wonderfully informative pastime.

Good listening !

## Where You Will Find It

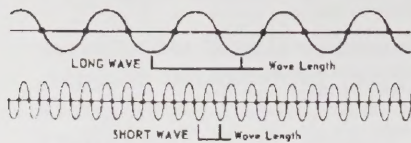
How SHORT WAVE . . . LONG WAVE Broadcasting works . . .	Page 2
Why SHORT WAVE is used for long distance transmission . . .	Page 2
What you will hear . . . . .	Page 3
Radio terms . . . . .	Page 4
Morse Code (CW) . . . . .	Page 4
Setting up your Communications Receiver . . . . .	Page 5
Description of features and controls . . . . .	Page 6, 7
How to operate your receiver . . . . .	Flap & Page 8
Service and operating questions . . . . .	Page 8
Outside antenna . . . . .	Page 9
Megacycles to meters conversion . . . . .	Page 9
Greenwich Mean Time (G.M.T.) and conversion to local time .	Page 10
Station Log . . . . .	Page 11 & 12
Service Data . . . . .	Inside Back Cover



# HOW SHORT WAVE ... LONG WAVE BROADCASTING WORKS

Understanding the mechanics of short-wave radio will help you receive the most enjoyment and the greatest thrills for the hours you spend at the dials.

You may often have heard the term *Wave Length* applied to the radio signals transmitted by a broadcasting station. Radio signals travel in *waves*; the wave length is the distance between the *crests* of the waves.



The total number of complete waves (or cycles) that a station can send out per second is referred to as *frequency*. The broadcasting frequency, therefore, is determined by the wave length on which a particular station is transmitting. The shorter the wave length, the higher the frequency.

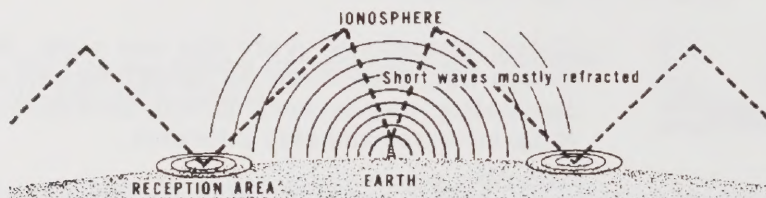
Every radio station in the world is licensed to broadcast on certain assigned frequencies or bands of frequencies.

The standard broadcasting stations such as those in your home town are assigned to lower frequencies, or *longer* wave lengths. The high-frequency bands are reserved for other types of transmitting stations throughout the world known as Short-Wave Stations.

## Why Short Wave Is Used For Long Distance Transmission

The chief characteristic of short waves is their amazing ability to span enormous distances.

The illustration shows the manner in which all radio signals travel in *waves* as they leave the transmitter antenna. Some of the signal *hugs* the ground, while the rest travels upward and outward away from the earth.



You are able to hear short-wave radio signals over great distances because they are refracted back to earth from layers of rarified gases high in the ionosphere. Short-wave signals enter the ionosphere and are refracted (bent) by the layer's electrical particles.

The physical action is similar to skipping a stone on smooth water. If the stone is of the correct size and shape and is thrown with enough power at the right angle, it will skip over the water's surface. The short-wave signal finds the ionosphere just as particular.

Similarly, the short-wave signal must be of the right size (frequency).

It must strike or enter the ionosphere at precisely the correct angle, and it must have sufficient power.

It may take *several skips* (just like a stone) for the signal to travel from the distant transmitter to your receiver. With each consecutive bounce, the signal becomes weaker until it is too weak to continue its process of refracting from the ionosphere back to earth (where it is heard), back off the earth into the ionosphere, and then again back to earth.

At different periods of the year, short-wave reception improves *above the normal value* between your receiving site and various areas of the world. As an example, the spring months bring the strongest signals from Australia and the South Pacific. In the fall months, signals from Europe and the Far East dominate the dials. Also as daylight changes into darkness each day between your receiving location and the transmitting station, so does the nature of the reception. Day-to-day variations are also present.



# What You May Hear On The Short Wave Bands

The Short Wave Bands are your passport to a world of exciting adventures.

**AMATEUR RADIO.** Amateur (ham) radio stations are operated by private citizens in more than 250 countries around the globe.

Amateurs talk to other amateur operators for personal pleasure or experimentation. No business or commercial transactions are permitted over stations operating in this service. Hams are allowed to operate on any frequency within assigned bands. The most commonly used are the 80-meter band; and the 40-, 20-, 15-, and 10-meter bands. (See page 9 for an explanation of the relationship between megacycles and meters.)

**SHIP-TO-SHORE, MOBILE RADIO-TELEPHONE.** Essentially a telephone without wires. Operated by telephone companies and businesses who lease transmitters and receivers to individuals.

Listen at approximately 2.1 MC.

**AERONAUTICAL-AIRPLANES-AIRPORTS.** — Weather information, flight conditions, re-routing of planes in time of bad weather. General communications between planes and stations on the ground.

You will find signals in this service at approximately 2.6, 2.9 to 3.0, at 4.1, and at approximately 7.6 MC.

**MILITARY.** Air Force, Army, Navy, Marine, and Coast Guard communications may be heard between ground stations and planes or vehicles 24 hours a day. These signals may be heard throughout the short-wave frequency range.

**MARITIME MOBILE.** In addition to military naval forces, commercial vessels, fishing fleets, and pleasure craft regularly communicate routine and emergency messages on short wave. These may be heard in the ranges from 2 to 3 MC, 4 to 4.4 MC, 6.2 to 6.5 MC, and 8.1 to 8.8 MC.

**CITIZENS BAND.** Low-cost, two-way radio now available to private citizens on the 11-meter band. More than 1,000,000 U.S. citizens are expected to be operating citizen-band transmitters. No operator's license is required. You will find the 11-meter band at approximately 27 MC.

**INTERNATIONAL SHORT-WAVE BROADCASTING.** Of all of the services you'll meet on short wave, international broadcasting offers the most varied entertainment. Many governments operate powerful short-wave transmitters (e.g., the U.S. Government's Voice of America) to keep the world informed of activities within their countries. Many countries also license commercial short-wave stations, and in fact, many regions of the world conduct much of their daily broadcasting on short wave, instead of the standard broadcast band. Major frequency assignments are indicated by the dots located in the upper portion of the bands. For specific stations and frequencies consult your Station Log.

**STANDARD TIME SIGNALS - WWV.** United States National Bureau of Standards broadcasts the correct time with voice as well as code identification. The identification occurs during the last two minutes of each 5 minute period (i.e., 03 to 05, 08 to 10, 13 to 15, etc). Other checks such as radio frequency, audio frequency, and forecast of conditions which will affect radio reception are broadcast. WWV will be found at 2.5, 5.0, 10.0, 15.0, 20.0, and 25.0 MC.



# ADDITIONAL INFORMATION WHICH WILL ENRICH YOUR SHORT WAVE LISTENING PLEASURE

## Glossary of Familiar Short Wave Terms

AF Gain Control -- same as volume control . . . AM -- Amplitude Modulation -- the transmitting frequency amplitude is varied at an audio rate . . . ANL -- Automatic Noise Limiter -- reduces impulse noises (ignition, static, crashes, etc.) . . . ANT -- Antenna . . . AVC -- Automatic Volume Control -- controls radio frequency gain automatically -- (i.e., reduces gain on strong signals) . . . BFO -- Beat Frequency Oscillator -- provides a special beating signal so that CW (code) signals can be heard . . . CQ -- a general call used by radio amateurs to establish contact. Caller will talk to anyone who answers. Can also be used specifically (CQDX, when calling only DX stations, or CQ Chicago, when calling stations only in Chicago) . . . CW -- Continuous Wave -- unmodulated signal wherein intelligence is transmitted by interrupting signal to produce dots and dashes (code) . . . DX -- distant stations . . . FM -- Frequency Modulation -- the transmitting frequency is varied at an audio rate . . . QRM -- interference from other signals . . . QRN -- interference-static . . . QRX -- Standby . . . QSL -- usually a card which verifies contact or acknowledges specific transmission . . . QSO -- a contact between two stations . . . OSY -- change operating frequency . . . RF Gain Control -- radio frequency gain control: controls the sensitivity of the radio frequency amplifier stage . . . RST -- readability, strength, tone . . . SWL -- short-wave listener.

## Official Radio Ten Signals (Police, fire, citizens band, etc.)

10-1	Receiving poorly	10-11	Remain in service
10-2	Receiving well	10-13	Advise weather and road conditions
10-3	Granted	10-14	Correct time
10-4	Received	10-18	Anything for us?
10-5	Relay	10-19	Nothing for you
10-6	Standby	10-20	What is your location?
10-7	Out of service	10-91	Too weak; talk louder
10-8	In service	10-92	Too loud
10-9	Repeat, conditions bad	10-93	Frequency check
10-10	Out of service -- subject to call	10-94	Give a test

## International Morse Code

Letter	Phonetic Sound	Dot-Dash Sequence	Letter	Phonetic Sound	Dot-Dash Sequence
A	di-dah	--	T	dah	-
B	dah-di-di-dit	----	U	di-di-dah	...
C	dah-di-dah-dit	----	V	di-di-di-dah	----
D	dah-di-dit	---	W	di-dah-dah	---
E	dit	.	X	dah-di-di-dah	----
F	di-di-dah-dit	----	Y	dah-di-dah-dah	----
G	dah-dah-dit	---	Z	dah-dah-di-dit	----
H	di-di-di-dit	----	Numbers		
I	di-dit	..	1	di-dah-dah-dah-dah	-----
J	di-dah-dah-dah	----	2	di-di-dah-dah-dah	-----
K	dah-di-dah	--.	3	di-di-di-dah-dah	-----
L	di-dah-di-dit	----	4	di-di-di-di-dah	-----
M	dah-dah	--	5	di-di-di-di-dit	-----
N	dah-dit	-.	6	dah-di-di-di-dit	-----
O	dah-dah-dah	---	7	dah-dah-di-di-dit	-----
P	di-dah-dah-dit	----	8	dah-dah-dah-di-dit	-----
Q	dah-dah-di-dah	----	9	dah-dah-dah-dah-dit	-----
R	di-dah-dit	-..	0	dah-dah-dah-dah-dah	-----
S	di-di-dit	...			

# How to Set Up Your Receiver

Your Hallicrafters Model S-118 Mark II is a Communications Receiver designed and manufactured to the most stringent quality standards. It has been packaged to insure safe arrival.

First, carefully lift the receiver out of the shipping carton and remove the specially coated wrapping paper.

Inspect the receiver for any visible damage.

Decide where you want to set up the receiver. In making your decision you should consider several things:

1. **● YOUR COMFORT.** You will spend many fascinating hours with your receiver. Be sure you place it where you will be able to enjoy tuning and listening at any time.
2. **● YOUR ANTENNA.** The first time you turn the receiver on and start your adventure in short wave listening you will most likely be using a 15-foot length of antenna wire. As you get more experience and begin reaching out for more distant stations you may want to set up an outside antenna. With this in mind, try to choose a location which is near a window or outside wall.
3. **● YOUR GROUND.** Should you progress to an outside antenna, it is GOOD PRACTICE TO GROUND YOUR SET FOR SAFETY. This will require running a ground wire from the ground connection on the back of the receiver to a cold water pipe or to a metal pipe driven into the earth.

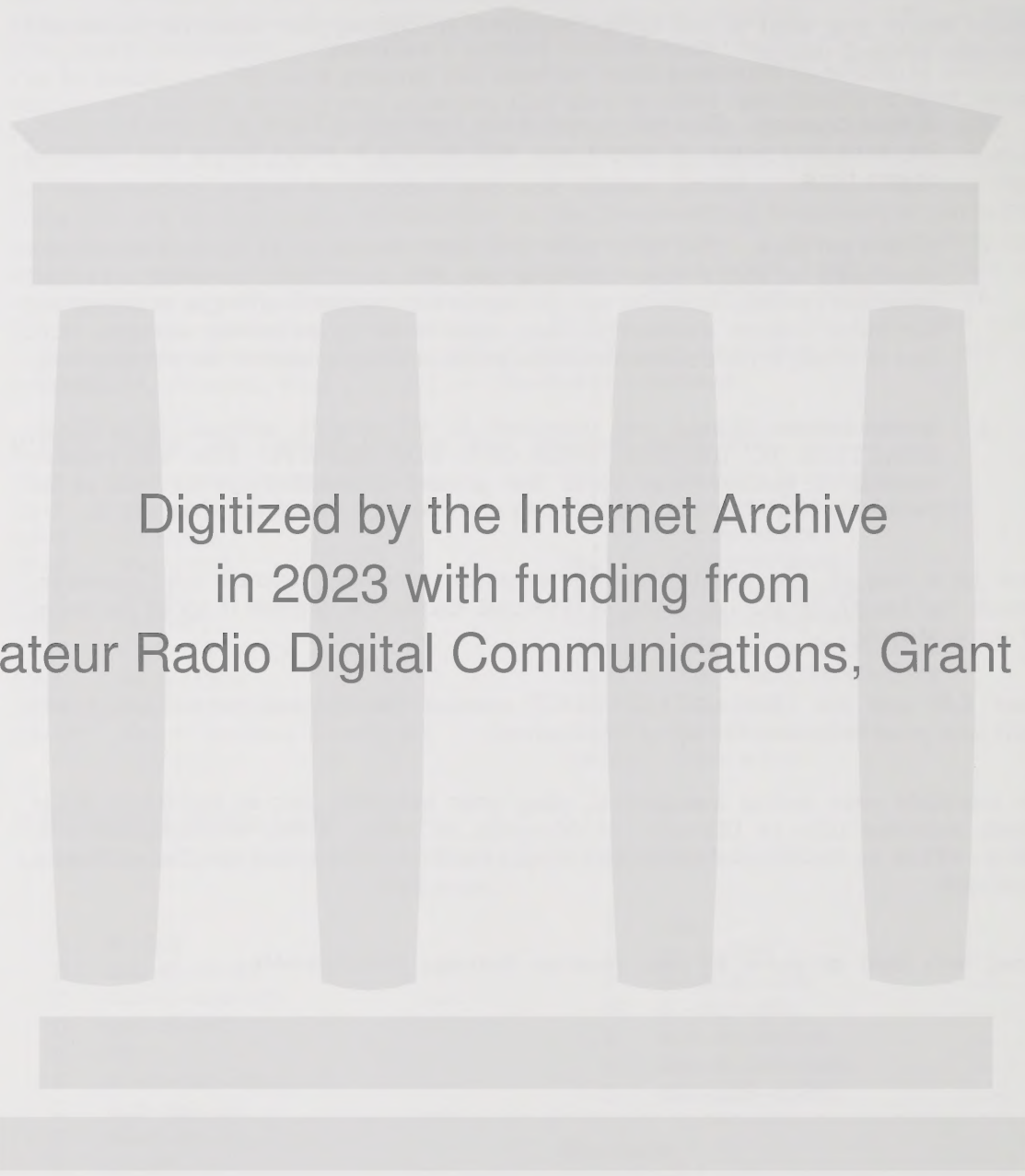
Now let's set up the SHORT WAVE antennas needed to operate your receiver. Attach the length of antenna wire to terminal marked A. Extend it about the room or out a window.

Your LW and AM (BROADCAST BAND) antenna (Band 1 and Band 2) is already built into your receiver. No setup is required.

To complete your initial installation, plug your receiver into an electrical outlet which provides 105- to 125-volt, 50/60-cycle, AC only. Power consumption is 33 watts. This is the type of electrical supply common throughout the United States.

*Now, let's look at some of your receiver features and controls . . . .*





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<https://archive.org/details/hallis118markii00unse>



# How to Operate Your Receiver

Some of the basics, such as setting up your receiver and plugging it in, have already been covered. Now you are ready to start listening. Here's how.

A good way to become familiar with your receiver is to first try it out on Band 2, the Standard AM Broadcast Band. You will find that stations with which you are familiar come in loud and clear. You will also discover many other stations which you may never have heard before.

## Getting Ready to Tune Your Receiver

1. Turn receiver ON by turning the OFF/VOLUME Control to the right. The dial will light up.
2. Place the REC/STBY Switch into the REC position.
3. Place the BFO switch in the OFF position.
4. Turn the BANDSPREAD Control until the short yellow pointer is at 0 on the LOGGING SCALE.
5. Select the band to which you wish to tune by turning the BAND SELECTOR Control to the appropriate band number.

## Tuning Long Wave (Band 1) and AM Broadcast (Band 2)

1. Turn BAND SELECTOR Control to the Band 1 or Band 2 setting.
2. Using the TUNING Control, move the red pointer to the station frequency desired.

## Tuning Short Wave Stations

The transmission of short wave signals is a more precise operation. Reception of these signals is subject to several things which are, for the most part, beyond the control of your receiver. These are: 1) atmospheric conditions such as solar disturbances which can help make a signal come in loud and clear, reduce signal strength and clarity or even block it out completely, 2) day-to-night and month-to-month atmospheric variance, and 3) your skill as a Short Wave Listener in tuning your receiver. These skills are quickly developed, however, and a good way to start is Dial Scanning.

### Dial Scanning Method

1. Select the band you wish to scan (by tuning through the entire band) by turning the BAND SELECTOR Control to Band 3, 4, or 5.
2. Adjust the yellow pointer on the LOGGING SCALE to about 0 by turning the BANDSPREAD Control.
3. Slowly move the red pointer across the dial, using the TUNING Control. You will alternately hear nothing, a few squeals, and then dots and dashes, voice, or music.
4. After you have tuned in as fine as you can with the TUNING Control, use the BANDSPREAD Control. Slowly move the yellow pointer, first from 0 to +50, and then down through 0 toward -50 until you bring a station in clearly.
5. You will notice as you scan the dial you can hear CW code (dots and dashes). If you wish to hear the code with the clarity required to read it, turn the BFO switch ON and adjust the SENSITIVITY control to the point which gives the clearest tone. You can make the tone sound higher or lower by turning the BANDSPREAD Control.



6. By waiting until the station identifies itself, you can log the station call letters, country and city of origin, transmitting frequency, and the time of reception so that you can tune in again at a later date. (See Station Log starting on Page 11.) For future location of the station, note the numbers indicated by the red and yellow pointers. For example: if the Band frequency is indicated as 8.0 and the LOGGING SCALE yellow pointer shows +22, the dial location should be logged as 8.022.

**TUNING A SPECIFIC STATION** follows the same steps as for Dial Scanning, except that you start with a specific frequency selected from your Station Log (see page 11). For example: if you wish to tune Radio MOSCOW you will see that one of the frequencies is 9.805. Taking 9.805 to demonstrate, you would:

1. Turn the BAND SELECTOR Control to Band 4.
2. Make sure the yellow LOGGING SCALE pointer is at 0.
3. Move the red pointer slightly above 9.8 on Band 4 with the TUNING Control.
4. Then, with the BANDSPREAD Control, slowly move the yellow pointer from 0 on the LOGGING SCALE to the vicinity of +5. NOTE: You may find that the station comes in a little below or above the +5 mark on the scale. Adjust if you wish.
5. Procedure for using the BFO switch for CW (code) or voice or music reception is the same as in Dial Scanning.

### Questions on Service or Operation

Most service problems are relatively minor. For example: if you hear a disturbing buzz, when trying to tune in a weak station, chances are it is being caused by a fluorescent light. Look for the cause and, if you can, turn it off.

If the receiver is ON, but you hear nothing, look to see if the REC/STBY Switch is in the Receive position.

When you turn the OFF/VOLUME Control to ON and nothing happens, look to see if the receiver is securely plugged into the electrical outlet.

If signals are coming in very weak, check to see if your antenna wire is securely connected.

For further information regarding operation or servicing of this equipment, contact the dealer from whom the unit was purchased. The Hallicrafters Company maintains an extensive system of Authorized Service Centers where any required service will be performed promptly and efficiently at no charge if this equipment is delivered to the service center within 90 days from date of purchase by the original buyer and the defect falls within the terms of the warranty. It is necessary to present the Bill-of-Sale in order to establish warranty status. After the expiration of the warranty, repairs will be made for a nominal charge. All Hallicrafters' Authorized Service Centers display the sign shown at the right. For the location of the one nearest you, consult your dealer or your local telephone directory.

No service shipments should be made to the factory unless instructed to do so by letter, as The Hallicrafters Company will not accept the responsibility for unauthorized shipments.

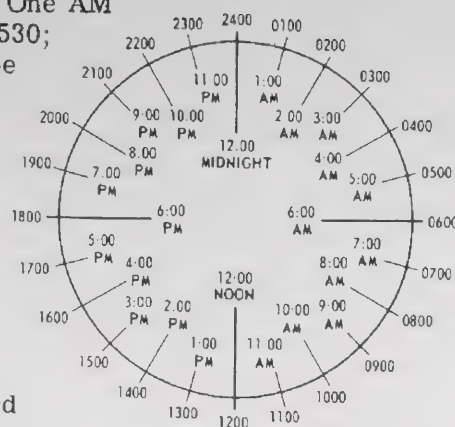
The Hallicrafters Company reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate such revisions in earlier models.



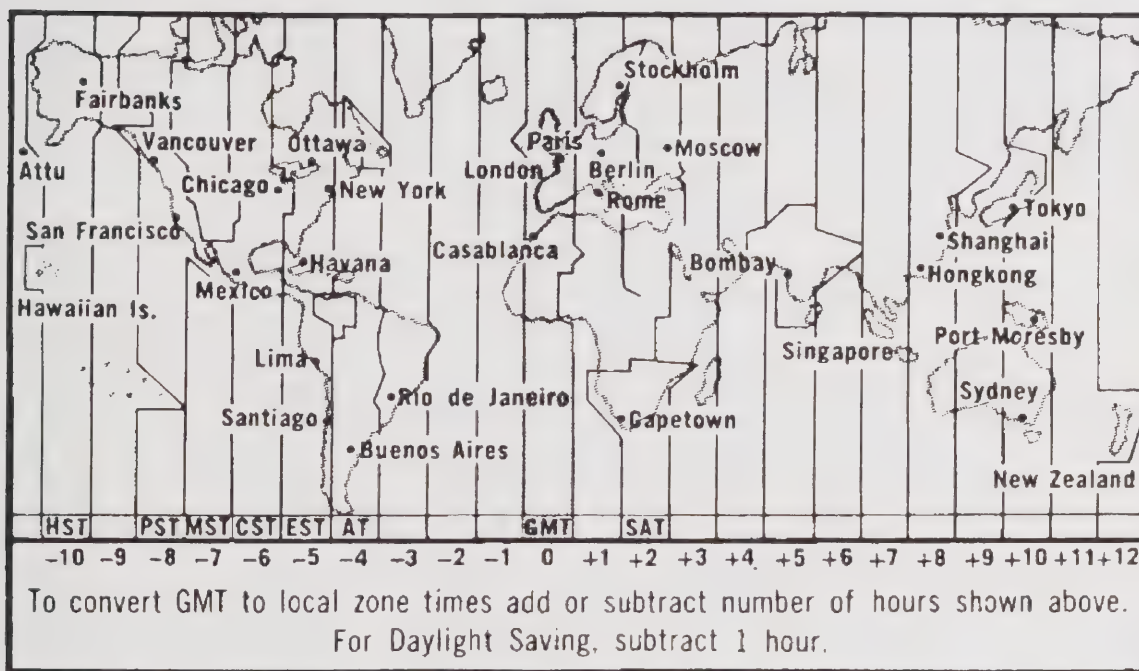


Communications time is told on a 24-hour clock. One AM is 0100; 4 AM is 0400; Noon is 1200; 3:30 PM is 1530; 8:45 PM is 2045; etc. With this method, there can be no confusion between AM and PM.

Converting from GMT to a local time zone is accomplished by adding or subtracting the hours shown on the INTERNATIONAL TIME MAP. For example: 1000 GMT is 0400 in CST (Central Standard Time).



Conversion from GMT to any other time zone is likewise accomplished by adding or subtracting hours. The chart for this is shown at the bottom line on the INTERNATIONAL TIME MAP.



## Instructions for use --- International Station Log.

Short wave listeners will find the following pages of great use in spotting and identifying international short-wave broadcasting stations operating from locations around the globe. The "Log" is prepared by broadcast frequencies. A column is provided for listing "Local Time Heard." Conversion from GMT to local time is explained above.

Stations listed in the log can be heard by listeners throughout the North American Continent. Transmission periods vary throughout the day and night. All broadcasts are in the English language unless otherwise indicated.



# THE ANTENNA

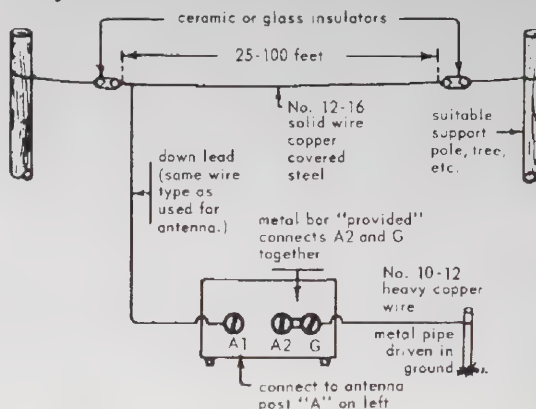
All short-wave receivers need an antenna. A better antenna will receive signals that are weak and far away. Chances are you'll do very well with the antennas provided.

More elaborate antennas generally are built either to operate on one frequency, or to perform with effective results over a wide band of frequencies.

Because most listeners want results on all short-wave frequencies covered by their receiver, a suitable antenna for general coverage is illustrated.

This antenna will produce the best reception when it is mounted high and clear away from power lines, trees, and surrounding objects.

Listeners desiring specific design information on more specialized antennas are referred to the "A.R.R.L. Antenna Book" published by the American Radio Relay League.



## Megacycles to Meters

All modern communication receivers are calibrated in megacycles. None the less, it is sometimes helpful to know what meter band corresponds to 11.866 megacycles for example. This is particularly true when tuning the International Short Wave Broadcasting stations who often announce only in meters. Megacycles may be converted to meters through the use of this simple formula:

$$300/\text{Megacycles} = \text{Meters}$$

For example:

$$300/11.866 = 25.28$$

$$\text{or } 11.866 \text{ MC} = 25.28 \text{ meters}$$

The conversion from meters to megacycles uses the same formula:

$$300/\text{meters} = \text{megacycles}$$

For example:

$$25.28 \text{ meters}$$

$$300/25.28 = 11.866 \text{ MC}$$

## Reference Material

Here are sources through whom a log book with listing of foreign and local stations, as well as other information of interest to both radio and short-wave listeners, may be obtained.

AMERICAN RADIO RELAY LEAGUE, 38 La Salle Rd., West Hartford, Conn. Official organization of radio amateurs in the U.S. Free Literature. Special publications on how to become a radio amateur.

WORLD RADIO HANDBOOK, available through Gilfer Associates, Box 239, Park Ridge, New Jersey. Yearly handbook of all short-wave stations, printed in Denmark.

POPULAR ELECTRONICS, 1 Park Avenue, N.Y. 16, N.Y. Monthly magazine available on newsstands. General news and features for the electronics hobbyist; excellent regular column on short-wave listening plus occasional SWL feature stories.



Column five, **TYPE PROGRAM**, is included in the log so that you may list the type of broadcast you heard. The following abbreviations will be of assistance in filling out that column.

NE – News in the English language.      ME – Music, English.  
 ET – Commentary in English.      MS – Music, Spanish.  
 ST – Commentary in Spanish.      MN – Music, native to the country of location.  
 ND – Indicates station does not broadcast daily.

In addition to the transmissions listed in the log, you will hear many English language broadcasts from such countries as Canada, Great Britain, and the United States. Because of the great volume of such broadcasts, and as they are easily heard without consulting a prepared guide, we have listed only a few such stations.

## STATION LOG

COUNTRY OF ORIGIN	CITY OF ORIGIN	CALL LETTERS	FREQUENCY IN MEGACYCLES	TYPE PROGRAM	LOCAL TIME HEARD
Liberia	Monrovia	ELBC	3.255		
British Honduras	Belize		3.300		
Ghana	Accra		3.365		
S. Africa	Paradys		4.810		
Singapore		FBS	5.010		
Tanganyika	Dar-es-salaam		5.050		
Ethiopia	Addis-Ababa		5.060		
Brazil	Sao Paulo	ZYR226	5.955		
Germany	Ismaning		5.960		
Dominican Republic	Ciudad	Radio Caribe	5.970		
North Borneo	Jesselton		5.980		
Haiti	Cap Hatien	4VB	5.980		
Rumania	Bucharest		5.990		
Belgium	Brussels	ORU	6.000		
Egypt	Abu Zabal		6.015		
Rhodesia	Salisbury		6.020		
Morocco	Tangier		6.025		
Iraq	Abu Ghurais		6.030		
England	Daventry	GWS	6.035		
Monaco		3M3	6.037		
China	Nanking	BCA22	6.040		
Indonesia	Djakarta	YDF	6.045		
Nigeria	Ibadan		6.050		
Poland	Warsaw		6.055		
Canada	Sackville N.B.	CKR2	6.060		
India	Delhi		6.065		
U.S.S.R.	Minsk		6.075		
Canada	Halifax		6.100		
England	London	BBC	6.110		
Monaco			6.115		
Japan	Tokyo	FEN	6.160		
Mexico	Mexico City		6.165		
Switzerland	Berne		6.165		
Nigeria	Kaduna		6.175		
North Korea	Pyongyang		6.195		
North Korea	Pyongyang		6.250		
Egypt	Cairo		7.051		
Taiwan	Chiayi		7.100		
Congo	Brazzaville		7.105		
Okinawa	Naha	VOA	7.160		
Hungary	Budapest		7.220		
Pakistan	Karachi		7.280		
East Germany	Berlin		7.300		
Czechoslovakia	Prague		7.340		
U.S.S.R.	Moscow	Radio Moscow	7.555		
Belgium	Brussels		9.144		
Bulgaria	Sofia		9.255		
China	Peking		9.480		



COUNTRY OF ORIGIN	CITY OF ORIGIN	CALL LETTERS	FREQUENCY IN MEGACYCLES	TYPE PROGRAM	LOCAL TIME HEARD
Denmark	Copenhagen	OZF	9.520		
Cuba	Havana		9.531		
Nigeria	Lagos		9.535		
Switzerland	Berne		9.535		
New Zealand	Wellington	ZL2	9.540		
Czechoslovakia	Prague		9.550		
Windward Islands	St. George's	WIBS	9.550		
Rumania	Bucharest		9.570		
Italy	Rome	RAI	9.575		
Canada	Montreal	CBC	9.585		
Mozambique	Lourenco	CR7BJ	9.616		
Sweden	Stockholm		9.665		
Argentina	Buenos Aires	LRA	9.690		
Dominican Republic	Ciudad	Radio Caribe	9.735		
China	Peking		9.785		
U.S.S.R.	Moscow	Radio Moscow	9.805		
Windward Islands	Barbados	2NX50	11.475		
U.S.S.R.	Moscow	Radio Moscow	11.570		
Egypt	Cairo	HSK9	11.665		
Thailand	Bangkok		11.670		
Pakistan	Karachi	Radio Sweden	11.674		
Sweden	Stockholm		11.705		
India	New Delhi		11.710		
Australia	Melbourne	VLA	11.710		
Holland	Hilversum	HVJ	11.730		
Windward Islands	St. George's		11.735		
Morocco	Rabat		11.735		
Vatican	Vatican City		11.740		
Canada	Montreal	CBC	11.760		
Indonesia	Djakarta	VLA	11.795		
Australia	Melbourne		11.810		
U.S.S.R.	Moscow		11.818		
Belgium	Brussels	ORU	11.850		
Katanga	Elizabethville	DZF2	11.866		
Philippines	Manila		11.920		
Congo	Brazzaville		11.925		
Singapore	Peking	BBC-FES	11.955		
China			12.125		
Iran		2PB	15.125		
Japan		JOA15	15.135		
Finland	Helsinki	O1X4	15.190		
Canada	Montreal	ELWA	15.190		
Liberia	Monrovia		15.198		
Taiwan	Taipei		15.225		
Yugoslavia	Belgrade	Radio Sweden	15.240		
Sweden	Stockholm		15.240		
Israel	Tel Aviv		15.250		
Ceylon	Colombo		15.265		
Poland	Warsaw	ZLA	15.275		
New Zealand	Wellington		15.280		
Australia	Melbourne		15.315		
France	Paris		15.350		
United States	New York City	WRUL	15.380		
West Germany	Cologne	DMQ15	15.405		
South Korea	Seoul	HLK9	17.745		
United States	New York City	WRUL	17.750		
Portugal	Lisbon	CSA44	17.870		







COUNTRY OF ORIGIN	CITY OF ORIGIN	CALL LETTERS	FREQUENCY IN MEGACYCLES	TYPE PROGRAM	LOCAL TIME HEARD
Denmark	Copenhagen	OZF	9.520		
Cuba	Havana		9.531		
Nigeria	Lagos		9.535		
Switzerland	Berne		9.535		
New Zealand	Wellington	ZL2	9.540		
Czechoslovakia	Prague		9.550		
Windward Islands	St. George's	WIB5	9.550		
Rumania	Bucharest		9.570		
Italy	Rome	RAI	9.575		
Canada	Montreal	CBC	9.585		
Mozambique	Lourenco				
	Marques	CR7BJ	9.616		
Sweden	Stockholm	Radio Sweden	9.665		
Argentina	Buenos Aires	LRA	9.690		
Dominican Republic	Ciudad	Radio Caribe	9.735		
China	Peking		9.785		
U.S.S.R.	Moscow	Radio Moscow	9.805		
Windward Islands	Barbados	2NX50	11.475		
U.S.S.R.	Moscow	Radio Moscow	11.570		
Egypt	Cairo		11.665		
Thailand	Bangkok	HSK9	11.670		
Pakistan	Karachi		11.674		
Sweden	Stockholm	Radio Sweden	11.705		
India	New Delhi		11.710		
Australia	Melbourne	VLA	11.710		
Holland	Hilversum		11.730		
Windward Islands	St. George's		11.735		
Morocco	Rabat		11.735		
Vatican	Vatican City	HVJ	11.740		
Canada	Montreal	CBC	11.760		
Indonesia	Djakarta		11.795		
Australia	Melbourne	VLA	11.810		
U.S.S.R.	Moscow	Radio Moscow	11.818		
Belgium	Brussels	ORU	11.850		
Katanga	Elizabethville		11.866		
Philippines	Manila	DZF2	11.920		
Congo	Brazzaville		11.925		
Singapore		BBC-FES	11.955		
China	Peking		12.125		
Iran	Teheran	2PB	15.125		
Japan	Tokyo	JOA15	15.135		
Finland	Helsinki	O1X4	15.190		
Canada	Montreal		15.190		
Liberia	Monrovia	ELWA	15.198		
Taiwan	Taipei	BED3	15.225		
Yugoslavia	Belgrade		15.240		
Sweden	Stockholm	Radio Sweden	15.240		
Israel	Tel Aviv		15.250		
Ceylon	Colambo		15.265		
Poland	Warsaw		15.275		
New Zealand	Wellington	ZLA	15.280		
Australia	Melbourne	VLA	15.315		
France	Paris		15.350		
United States	New York City	WRUL	15.380		
West Germany	Cologne	DMQ15	15.405		
South Korea	Seoul	HLK9	17.745		
United States	New York City	WRUL	17.750		
Portugal	Lisbon	CSA44	17.870		



*hallicrafters***MODEL S-118 MARK II FIVE BAND COMMUNICATIONS RECEIVER***Identification of features and controls.*

**COVERAGE:** The S-118 Mark II receiver has five individual bands: a Long Wave Band covering 190 KC to 410 KC, a Broadcast Band covering 500 KC to 1600 KC, plus three Short Wave Bands which provide continuous coverage from 1.7 MC to 30 MC.

**BAND 1** — Long Wave reception carrying aeronautical and marine weather and navigation reports.

**BAND 2** — Standard AM Broadcast station reception. The international distress frequency may be monitored at 500 KC.

**BAND 3** — Spans a 1.7- to 4.6-megacycle (MC) range. Marine and aviation broadcasts and western hemisphere weather forecasts can be heard on this band. The correct time broadcast by world time standard station WWV may be tuned in at 2.5 MC. The extra line beginning at 3.5 MC is the 80-meter amateur radio band. All extra lines (thin lines) located above the main lines of Bands 3 through 5 designate the amateur radio bands in meters. (Page 9 explains the meter-megacycle relationship.)

**BAND 4** — Covers 5.0 to 14 megacycles (MC). This short wave band carries international broadcasts from distant countries, the 40- and 20-meter amateur radio bands, and WWV located at 5 and 10 MC.

**BAND 5** — Includes 15 to 30 megacycles (MC). International broadcasts from many places can be found in this band in addition to the 15- and 10-meter amateur radio bands and citizens band stations. WWV time can be checked on this band at 15, 20, and 25 MC.

**SPEAKER:** 4-inch permanent magnet, 3.2-ohm voice coil.

**PHONES:** Front panel jack for plugging in any commercial low-impedance headphones ranging from 3 to 2000 ohms. With headphones plugged in the receiver, the built-in speaker will be disconnected.

**SENSITIVITY CONTROL:** Control set fully clockwise for maximum sensitivity. Should hiss or background noise be heard, or strong signals cause distortion, reduce the sensitivity by turning the control slowly counterclockwise. If this action reduces volume, advance the VOLUME control.

**REC-STBY SWITCH:** Normally set in REC (receive). When in STBY (standby) position, the receiver is ON and remains at operating temperature, but the speaker or headphone circuits are not connected; no sound is heard. The STBY feature allows thorough and silent warmup of the tubes for precise location of previously tuned stations. With the receiver already tuned-in, the STBY feature permits silencing of the receiver and instant return on frequency to REC.

**BAND SELECTOR CONTROL:** White line on control knob indicates the corresponding band on the dial which is being tuned-in.

**OFF-ON/VOLUME CONTROL**

**OFF-ON/VOLUME CONTROL:** Turn receiver ON (clockwise) and OFF (counterclockwise). Volume is increased as control is turned in the clockwise direction. Allow one minute for warmup after turning receiver ON. A slight hum is normal. If a loud hum is evident, reverse the plug to the electrical outlet to minimize the hum.

**OFF-ANL SWITCH:** This switch is normally set at OFF. If noise interferes with reception, place the switch in the ANL position. This will reduce interference; however, some distortion of speech and music reproduction may result.

**OFF-B.F.O. SWITCH:** This switch is primarily used to provide the necessary beat frequency tone when receiving CW (code) signals, or single sideband. Set this switch to the OFF position for AM broadcast reception; set it at B.F.O. for CW signals. When listening to CW signals, advance the VOLUME control to maximum (fully clockwise), and adjust the SENSITIVITY control to a comfortable volume level. Many voice stations in the amateur bands are using Single-Sideband Suppressed Carrier Transmission. In order to receive this type of signal, it will be necessary to switch B.F.O. ON. Tuning will be quite critical. The SENSITIVITY control should be set toward minimum and the VOLUME control advanced toward maximum.

**LOGGING SCALE:** Professional micrometer-type scale which reads to one-thousandths of a megacycle. The yellow pointer, moved by the BANDSPREAD control, indicates reading on the LOGGING SCALE.

**BANDSPREAD CONTROL:** Similar to a fine tuning control, only far more sensitive. Use for fine tuning after using Main Tuning Control to move red pointer to approximate dial location of station you wish to receive. Electrically expands 0.1 reading 100 times. Control moves yellow pointer on LOGGING SCALE.

**TUNING CONTROL:** Use for regular or fast tuning. Moves red pointer to dial location. Adequate for tuning most Standard Broadcast stations and for scanning the Short Wave Bands.

**SPECIFICATIONS**

**ANTENNAS:** Self-contained ferrite loopstick for Band 1 and Band 2 (broadcast). Two contact, screw-type terminal strip on rear panel for external antenna of 52 ohms to 600 ohms impedance for Band 3, Band 4, and Band 5.

**TUBES:** Five: 6BL8 Mixer; 12BA6 IF Amplifier; 12BA6 IF Amplifier, BFO; 12AV6 First Audio Detector, AVC, ANL; 6AQ5A Audio Output; plus two silicon diodes.

**PANEL LAMPS:** Two each NO. 44.

**PHYSICAL DATA:** Gray steel cabinet with silver trim. Size: 6-3/8 inches high by 14-1/2 inches wide by 8-3/4 inches deep. Approximate weight: 15 pounds.

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## ALIGNMENT PROCEDURES

- Use an amplitude modulated signal generator covering 185 KC to 31 MC.
- Connect the output meter across the speaker voice coil.
- Use a non-metallic alignment tool.
- Connect a 27-ohm carbon resistor between the generator and the receiver.

- Set REC-STBY Switch to REC; AM/CW to AM; OFF-ANL to OFF; SENSITIVITY fully clockwise; VOLUME fully clockwise and BANDSPREAD at mid-scale for Bands 3, 4, and 5, fully counterclockwise for Bands 2 and 3.
- Refer to the top and bottom views for location of adjustments.

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust	Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust
1	High side through a 0.01- $\mu$ f capacitor to pin 2 of V1; low side to chassis ground.	455 KC (modulated 30%).	2	Center of dial.	Alignment points A, B, C, D, E, and F for maximum output. Reduce the generator output to maintain meter indication below 50 milliwatts.	8	Same as step 2.	4200 KC (modulated 30%).	3200	4200 KC	Adjust C34 (oscillator) and C4 (antenna) for maximum output.
2	High side through 27-ohm resistor to terminal A on rear panel; low side to terminal G.	1400 KC (modulated 30%).	2	1400 KC	Adjust C36 (oscillator) and C3 (antenna) for maximum output.	9	Same as step 2.	1900 KC (modulated 30%).	3	1900 KC	Adjust L9 (oscillator) and L2 (antenna) for maximum output.
3	Same as step 2.	550 KC (modulated 30%).	2	550 KC	Adjust L10 (oscillator) and L5 (antenna) for maximum output.	10	Same as step 2.	-----	3	-----	Repeat steps 8 and 9 until no increase in output can be obtained with either adjustment.
4	Same as step 2.	-----	2	-----	Repeat steps 2 and 3 until no increase in output can be obtained with either adjustment.	11	Same as step 2.	14 MC (modulated 30%).	4	14 MC	Adjust C32 (oscillator) and C5 (antenna) for maximum output.
5	Same as step 2.	410 KC (modulated 30%).	1	410 KC	Adjust C38 (oscillator) and C7 (antenna) for maximum output.	12	Same as step 2.	5.0 MC (modulated 30%).	4	5.0 MC	Adjust L8 (oscillator) and L3 (antenna) for maximum output.
6	Same as step 2.	190 KC (modulated 30%).	1	190 KC	Adjust L11 (oscillator) for maximum output. L1, loop adjustment should not be necessary.	13	Same as step 2.	-----	4	-----	Repeat steps 11 and 12 until no increase in output can be obtained with either adjustment.
7	Same as step 2.	-----	1	-----	Repeat steps 5 and 6 until no increase in output can be obtained with either adjustment. Then repeat steps 2 and 3.	14	Same as step 2.	30.0 MC (modulated 30%).	5	30.0 MC	Adjust C30 (oscillator) and C6 (antenna) for maximum output.
						15	Same as step 2.	15.0 MC (modulated 30%).	5	15.0 MC	Adjust L7 (oscillator) and L4 (antenna) for maximum output.
						16	Same as step 2.	-----	5	-----	Repeat steps 14 and 15 until no increase in output can be obtained with either adjustment.

NOTE 1. The local oscillator frequency is above the incoming signal on bands 1, 2, 3, 4, and is lower than the incoming signal on band 5.

### TUBE AND DIAL LAMP REPLACEMENT

For access to the tubes remove the three screws holding the rear panel in place and remove the panel. Care should be exercised to prevent damage to the leads from the loopstick antenna mounted on this panel (see CHASSIS REMOVAL).

### CHASSIS REMOVAL

To remove the chassis, remove the four screws securing the chassis to the cabinet and slide the chassis out the rear of the cabinet.

**CAUTION:** Before removing the chassis from the cabinet rotate the MAIN TUNING and BANDSPREAD controls fully counterclockwise to prevent damaging the variable capacitors.

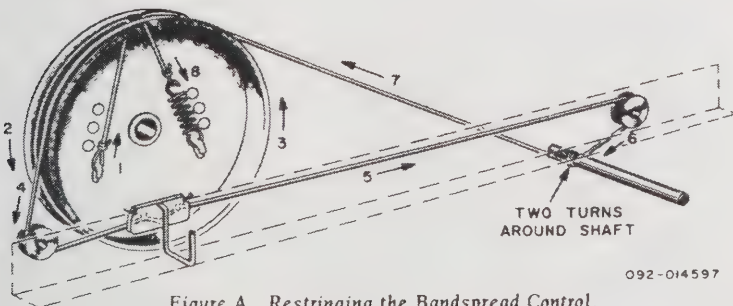


Figure A. Restringing the Bandspread Control.

### DIAL CORD RESTRINGING

Remove the chassis from the cabinet to restring either dial cord (see CHASSIS REMOVAL). Remove the dial scale by removing two screws; remove the dial plate by removing four hex-head screws. Removing the dial plate provides complete access to the drive pulleys. Exercise care when removing the dial plate to prevent damage to the pointers. Follow the arrows and number sequence in figure A for the main tuning dial and figure B for the logging scale dial. The dial cord springs should be expanded from one-quarter inch to one-half inch. Engage the dial cord with the pointer clips; replace the dial plate and dial scale. With the MAIN TUNING and BANDSPREAD controls fully counterclockwise, align the pointers to the mark on the dial scale and apply a drop of cement to the dial cord and pointer clip. Replace the chassis in the cabinet.

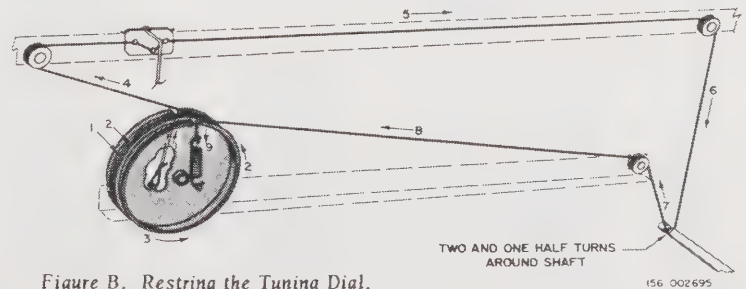


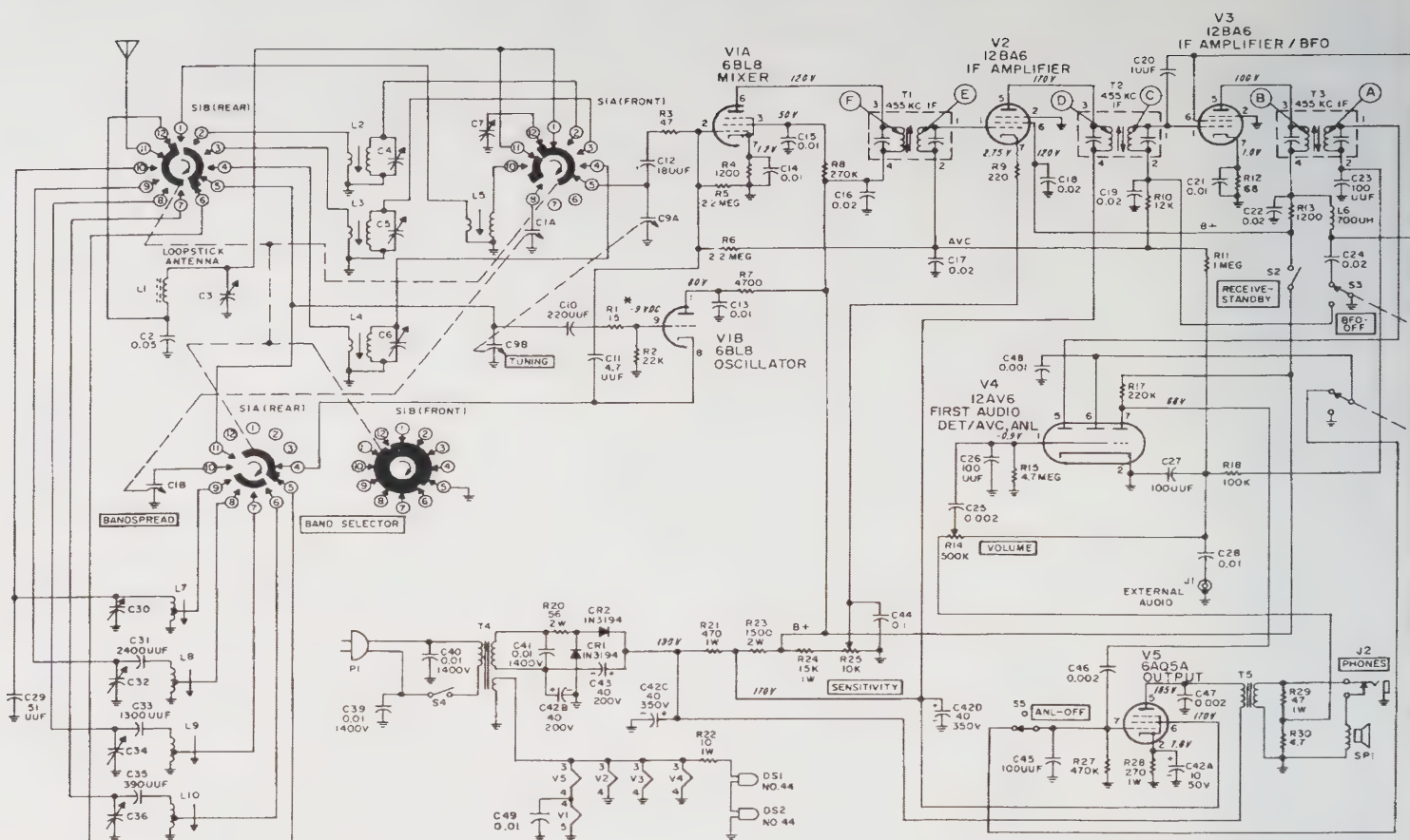
Figure B. Restringing the Tuning Dial.





SERVICE REPAIR PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			*RESISTORS (cont.)			ELECTRON TUBES, DIODES, AND TUBE SOCKETS		
C1	Variable, BANDSPREAD	048-000555	R17	220K ohm	451-252224	V1	6BL8, Mixer-Oscillator	090-901431
C2	0.05 $\mu$ F, 20%, 100V, Ceramic Disc	047-001649	R18	100K ohm	451-252104	V2	12BA6, IF Amplifier	090-900039
C3,4,5,6,7	Variable, Antenna Trimmer Assembly	044-000597	R20	56 ohm, 2 watts	451-652560	V3	12BA6, IF Amplifier-BFO	090-900039
C9	Variable, TUNING	048-000554	R21	470 ohm, 1 watt	451-352471	V4	12AV6, First Audio-Detector - AVC - ANL	090-901187
C10	220 $\mu$ F, 2.5%, 500V, Plastic	505-201221	R22	10 ohm, 1 watt	451-352100	V5	6AQ5A, Output	090-901331
C11	4.7 $\mu$ F, 10%, 500V, Composition	047-200403-06	R23	1500 ohm, 2 watts	451-652152	CR1,2	1N3194, Silicon Rectifier	019-002769
C12	18 $\mu$ F, 10%, 500V, NPO, Ceramic Tubular	491-106180-22	R24	15K ohm, 1 watt	451-352153	XV1	Socket, 9-Pin	006-000888
C13,14,15, 21,28,49	0.01 $\mu$ F, +80%, -20%, 500V Ceramic Disc	047-100224	R25	Variable, 10K ohm, 20%, 2 watts, SENSITIVITY	025-002236	XV2,3,4,5	Socket, 7-Pin	006-000886
C16,17,18, 19,22,24	0.02 $\mu$ F, +80%, -20%, 500V, Ceramic Disc	047-100242	R27	470K ohm	451-252474	MISCELLANEOUS		
C20	1 $\mu$ F, 10%, 500V, Composition	047-200403-02	R28	270 ohm, 1 watt	451-352271	Bracket Assembly, Dial Plate Mounting		150-004147
C23,26,27,45	100 $\mu$ F, 1000V, Ceramic	047-001799	R29	47 ohm, 1 watt	451-352470	Bracket Assembly, Pointer Rail		150-004146
C25,46,47	0.002 $\mu$ F, 20%, 1000V, Ceramic Disc	047-100794	R30	4.7 ohm	451-252047	Cabinet		150-004151
C29	51 $\mu$ F, 10%, 500V, NPO, Ceramic Tubular	491-006510-22	*All RESISTORS are 10%, 1/2 watt, carbon type, unless otherwise specified.			Clamp, Loop		076-202743
C30,32,34 36,38	Variable, Oscillator Trimmer Assembly	044-000596	COILS AND TRANSFORMERS			Clip, IF Transformer Mounting		076-003779
C31	2400 $\mu$ F, 2.5%, 500V, Plastic	505-201242	L1	Coil, Antenna Loopstick, Band 1	057-000422	Dial Cord		038-000049
C33	1300 $\mu$ F, 2.5%, 500V, Plastic	505-201132	L2	Coil, Antenna, Band 3	051-003402	Dial Glass, Calibrated		083-001039
C35	390 $\mu$ F, 2.5%, 500V, Plastic	505-201391	L3	Coil, Antenna, Band 4	050-001088	Escutcheon		007-000828
C37	230 $\mu$ F, 2.5%, 500V, Plastic	505-201231	L4	Coil, Antenna, Band 5	051-003404	Foot, Plastic		016-001469
C39,40,41	0.01 $\mu$ F, GMV, 1400V, Ceramic Disc	047-200752	L5	Coil, Antenna, Band 2	050-001229	Iron Core		003-203388
C42A,B, C&D	10 $\mu$ F, 50V; 40 $\mu$ F, 200V; 40-40 $\mu$ F, 350V; Electrolytic	045-000632	L6	Coil, 700 $\mu$ H, RF Choke	050-001044-10	Knob, BANDSPREAD and TUNING		015-001751
C43	40 $\mu$ F, 200V, Electrolytic	045-000633	L7	Coil, Oscillator, Band 5	051-003409	Knob, BAND SELECTOR and VOLUME		015-001572
C44	0.1 $\mu$ F, 20%, 200V, Paper	046-001294-05	L8	Coil, Oscillator, Band 4	051-003408	Knob, SENSITIVITY		015-001571
C48	0.001 $\mu$ F, 500V, Ceramic Disc	047-001671	L9	Coil, Oscillator, Band 3	051-003407	Lamp, Pilot (No. 44)	DS1,2 P1	039-100003
*RESISTORS			L10	Coil, Oscillator, Band 2	051-003406	Line Cord and Plug		087-100078
R1	15 ohm	451-252150	L11	Coil, Oscillator, Band 1	051-003405	Lock, Line Cord		076-100974
R2	22K ohm	451-252223	T1,2,3	Transformer, IF, 455-KC	050-000945	Pilot Lamp Assembly		086-000618
R3	47 ohm	451-252470	T4	Transformer, Power	052-001018	Plate, Dial Background		063-005691
R4,13	1200 ohm	451-252122	T5	Transformer, Output (Part of SP1)	-----	Pointer, Bandspread		082-000572
R5,6	2.2 megohm	451-252225	SWITCHES AND CONNECTORS			Pointer, Main Tuning		082-000615
R7	4700 ohm	451-252472	S1	Switch, Rotary, BAND SELECTOR	060-002649	Pointer, Rail		150-004148
R8	270K ohm	451-252274	S2	Switch, Slide, SPDT, RECEIVE-STANDBY	060-002560	Rear Panel Assembly		150-007081
R9	220 ohm	451-252221	S3	Switch, Slide, DPDT, BFO-OFF	060-002561	Ring, Retaining		076-100883
R10	12K ohm	451-252123	S4	Switch, ON/OFF (Part of R14)	-----	Rubber Channel, Glass Retaining		016-001245
R11	1 megohm	451-252105	S5	Switch, Slide SPDT, ANL-OFF	060-002560	Shaft, Bandspread		074-002709
R12	68 ohm	451-252680	J1	Connector, Socket, External Audio	036-100041	Shaft, Main Tuning		074-002710
R14	Variable, 500K ohm, 20%, 1/4 watt, VOLUME (Inc S4)	025-002318	J2	Connector, Socket, PHONES	036-100243	Shield, Electron Tube (V2, 3, 4)		069-100232
R15	4.7 megohm	451-252475				Shield, Pilot Lamp		069-001675
						Spacer, Pointer Rail Mounting		073-004325
						Speaker (Includes T5)	SP1	085-000219
						Spring, Dial Cord		075-000173
						Terminal Board (A-G)		088-202026
						Trim Strip, Cabinet		007-000830



#### NOTES:

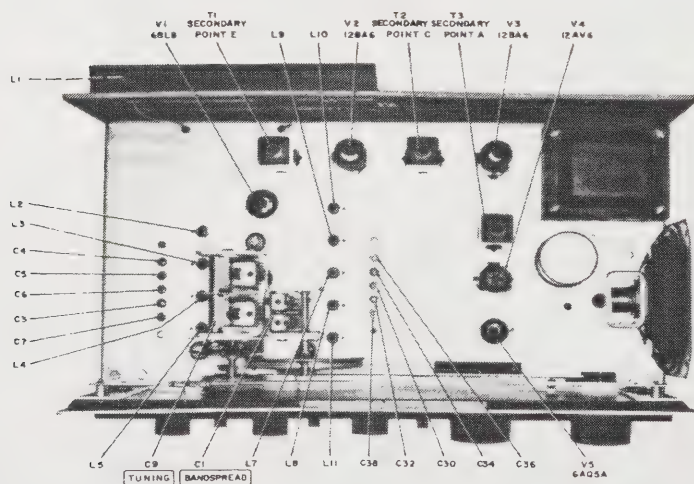
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE IN OHMS. ALL CAPACITORS ARE IN MICROFARADS (UF).
2. BAND SELECTOR SWITCH S1 VIEWED FROM THE FRONT (KNOB END); BAND 1 SHOWN IN FULL COUNTERCLOCKWISE POSITION; PINS ON S1B FRONT AND S1B REAR ARE CONNECTED TOGETHER RESPECTIVELY EXCEPT PINS 5 AND 11.
3. ON/OFF SWITCH S4 IS AN INTEGRAL PART OF VOLUME CONTROL R14.

4. S2 SHOWN IN STANDBY POSITION.
5. S3 SHOWN IN OFF POSITION.
6. S5 SHOWN IN ANL (ON) POSITION.
7. INDICATES EQUIPMENT MARKING.

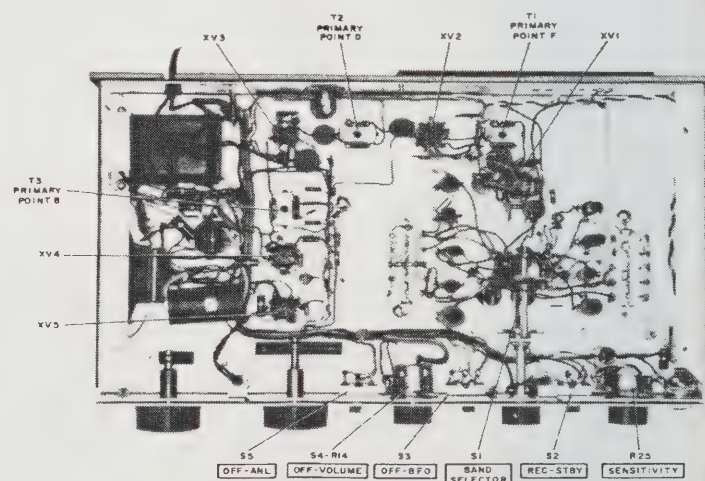
ALL VOLTAGES ARE D.C. MEASUREMENTS MADE WITH RESPECT TO CHASSIS GROUND UNDER NO SIGNAL CONDITIONS. RF GAIN CONTROL FULLY COUNTERCLOCKWISE. AF GAIN CONTROL FULLY COUNTERCLOCKWISE. ANL AND BFO IN OFF POSITION AND RECEIVE-STANDBY IN RECEIVE POSITION.  
\* VARIES WITH BAND SETTINGS.

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## TOP



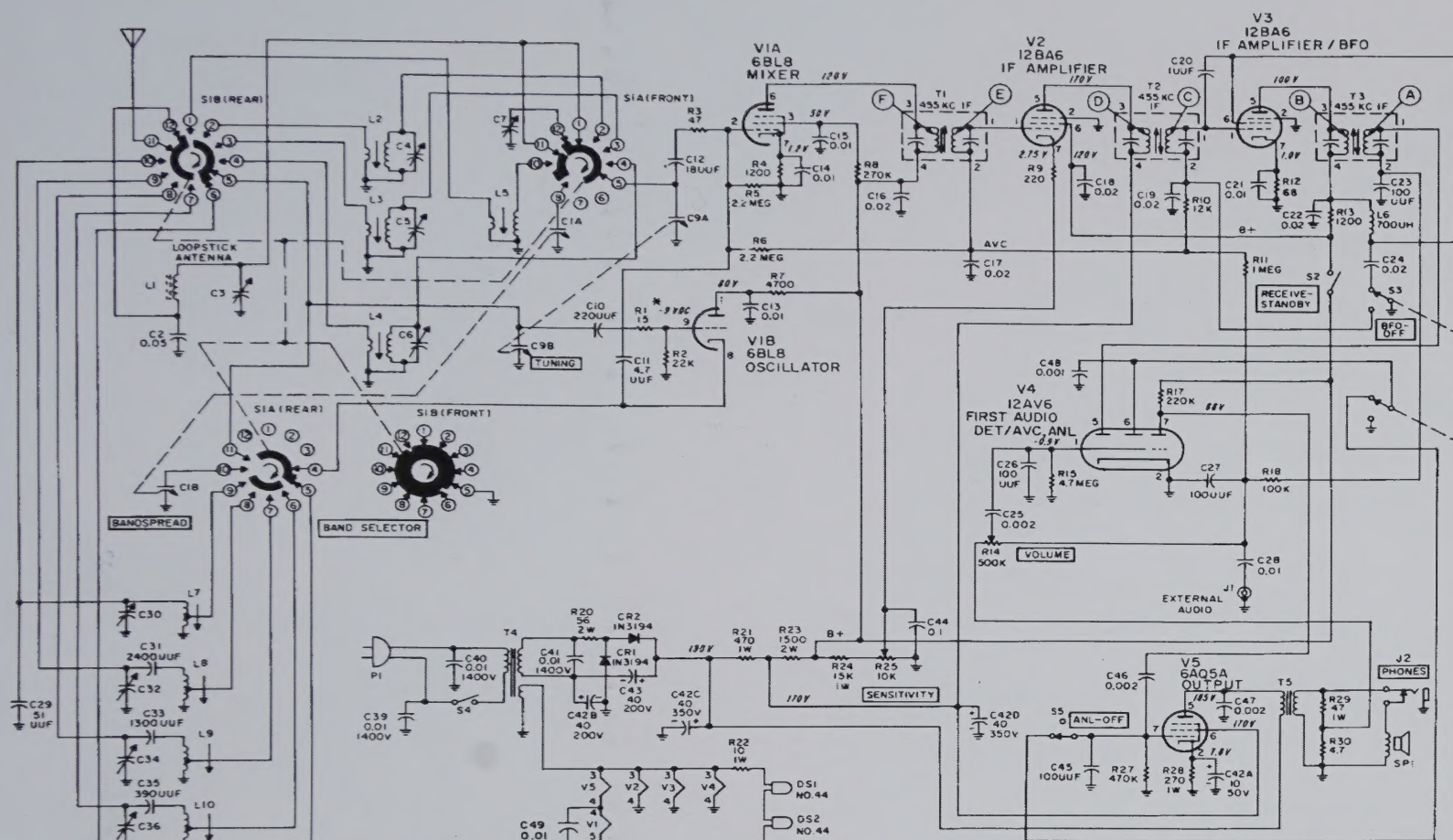
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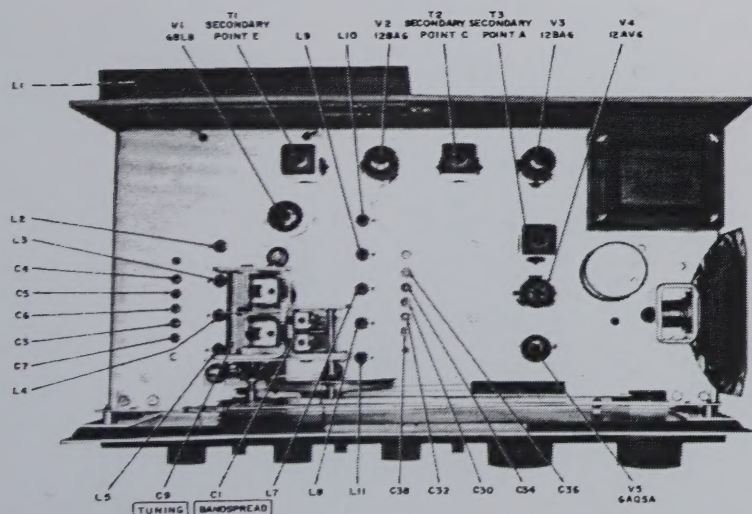


- NOTES:
1. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE IN OHMS. ALL CAPACITORS ARE IN MICROFARADS (UF).
  2. BAND SELECTOR SWITCH S1 VIEWED FROM THE FRONT (KNOB END); BAND 1 SHOWN IN FULL COUNTERCLOCKWISE POSITION; PINS ON S1B FRONT AND S1B REAR ARE CONNECTED TOGETHER RESPECTIVELY EXCEPT PINS 9 AND 11.
  3. ON/OFF SWITCH S4 IS AN INTEGRAL PART OF VOLUME CONTROL R14.
  4. S2 SHOWN IN STANDBY POSITION.
  5. S3 SHOWN IN OFF POSITION.
  6. S5 SHOWN IN ANL (ON) POSITION.
  7. INDICATES EQUIPMENT MARKING.

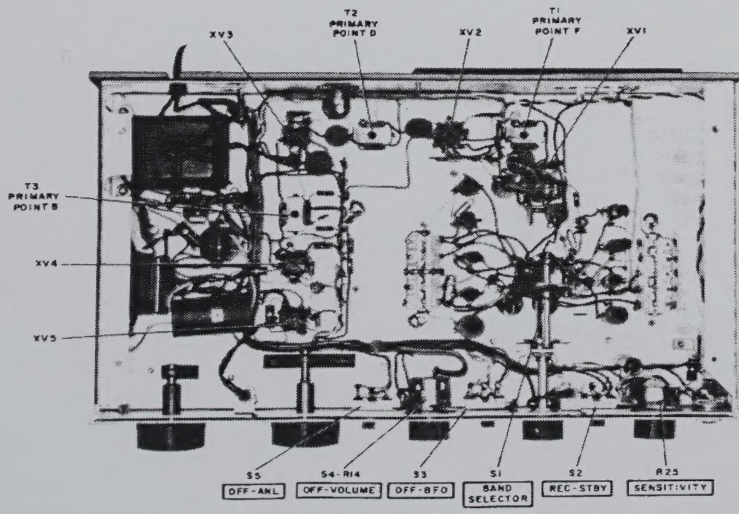
ALL VOLTAGES ARE D.C. MEASUREMENTS MADE WITH RESPECT TO CHASSIS GROUND UNDER NO SIGNAL CONDITIONS. RF GAIN CONTROL FULLY CLOCKWISE. AF GAIN CONTROL FULLY COUNTERCLOCKWISE. ANL AND BFO IN OFF POSITION AND RECEIVE-STANDBY IN RECEIVE POSITION. \* VARIES WITH BAND SETTINGS.

155-000027

## TOP



## BOTTOM



## ALIGNMENT PROCEDURES

- Use an amplitude modulated signal generator covering 185 KC to 31 MC.
- Connect the output meter across the speaker voice coil.
- Use a non-metallic alignment tool.
- Connect a 27-ohm carbon resistor between the generator and the receiver.

- Set REC-STBY Switch to REC; AM/CW to AM; OFF-ANL to OFF; SENSITIVITY fully clockwise; VOLUME fully clockwise and BANDSPREAD at mid-scale for Bands 3, 4, and 5, fully counterclockwise for Bands 2 and 3.
- Refer to the top and bottom views for location of adjustments.

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust	Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust
1	High side through a 0.01-μf capacitor to pin 2 of V1; low side to chassis ground.	455 KC (modulated 30%).	2	Center of dial.	Alignment points A, B, C, D, E, and F for maximum output. Reduce the generator output to maintain meter indication below 50 milliwatts.	8	Same as step 2.	4200 KC (modulated 30%).	3200	4200 KC	Adjust C34 (oscillator) and C4 (antenna) for maximum output.
2	High side through 27-ohm resistor to terminal A on rear panel; low side to terminal G.	1400 KC (modulated 30%).	2	1400 KC	Adjust C36 (oscillator) and C3 (antenna) for maximum output.	9	Same as step 2.	1900 KC (modulated 30%).	3	1900 KC	Adjust L9 (oscillator) and L2 (antenna) for maximum output.
3	Same as step 2.	550 KC (modulated 30%).	2	550 KC	Adjust L10 (oscillator) and L5 (antenna) for maximum output.	10	Same as step 2.	-----	3	-----	Repeat steps 8 and 9 until no increase in output can be obtained with either adjustment.
4	Same as step 2.	-----	2	-----	Repeat steps 2 and 3 until no increase in output can be obtained with either adjustment.	11	Same as step 2.	14 MC (modulated 30%).	4	14 MC	Adjust C32 (oscillator) and C5 (antenna) for maximum output.
5	Same as step 2.	410 KC (modulated 30%).	1	410 KC	Adjust C38 (oscillator) and C7 (antenna) for maximum output.	12	Same as step 2.	5.0 MC (modulated 30%).	4	5.0 MC	Adjust L8 (oscillator) and L3 (antenna) for maximum output.
6	Same as step 2.	190 KC (modulated 30%).	1	190 KC	Adjust L11 (oscillator) for maximum output. L1, loop adjustment should not be necessary.	13	Same as step 2.	-----	4	-----	Repeat steps 11 and 12 until no increase in output can be obtained with either adjustment.
7	Same as step 2.	-----	1	-----	Repeat steps 5 and 6 until no increase in output can be obtained with either adjustment. Then repeat steps 2 and 3.	14	Same as step 2.	30.0 MC (modulated 30%).	5	30.0 MC	Adjust C30 (oscillator) and C6 (antenna) for maximum output.
						15	Same as step 2.	15.0 MC (modulated 30%).	5	15.0 MC	Adjust L7 (oscillator) and L4 (antenna) for maximum output.
						16	Same as step 2.	-----	5	-----	Repeat steps 14 and 15 until no increase in output can be obtained with either adjustment.

NOTE 1. The local oscillator frequency is above the incoming signal on bands 1, 2, 3, 4, and is lower than the incoming signal on band 5.

### TUBE AND DIAL LAMP REPLACEMENT

For access to the tubes remove the three screws holding the rear panel in place and remove the panel. Care should be exercised to prevent damage to the leads from the loopstick antenna mounted on this panel (see CHASSIS REMOVAL).

### CHASSIS REMOVAL

To remove the chassis, remove the four screws securing the chassis to the cabinet and slide the chassis out the rear of the cabinet.

**CAUTION:** Before removing the chassis from the cabinet rotate the MAIN TUNING and BANDSPREAD controls fully counterclockwise to prevent damaging the variable capacitors.

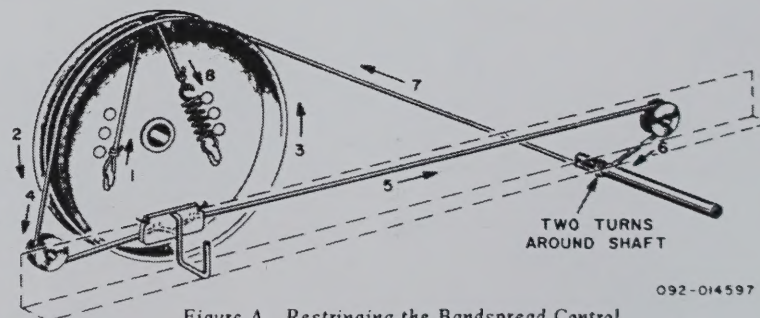


Figure A. Restringing the Bandspread Control.

### DIAL CORD RESTRINGING

Remove the chassis from the cabinet to restring either dial cord (see CHASSIS REMOVAL). Remove the dial scale by removing two screws; remove the dial plate by removing four hex-head screws. Removing the dial plate provides complete access to the drive pulleys. Exercise care when removing the dial plate to prevent damage to the pointers. Follow the arrows and number sequence in figure A for the main tuning dial and figure B for the logging scale dial. The dial cord springs should be expanded from one-quarter inch to one-half inch. Engage the dial cord with the pointer clips; replace the dial plate and dial scale. With the MAIN TUNING and BANDSPREAD controls fully counterclockwise, align the pointers to the mark on the dial scale and apply a drop of cement to the dial cord and pointer clip. Replace the chassis in the cabinet.

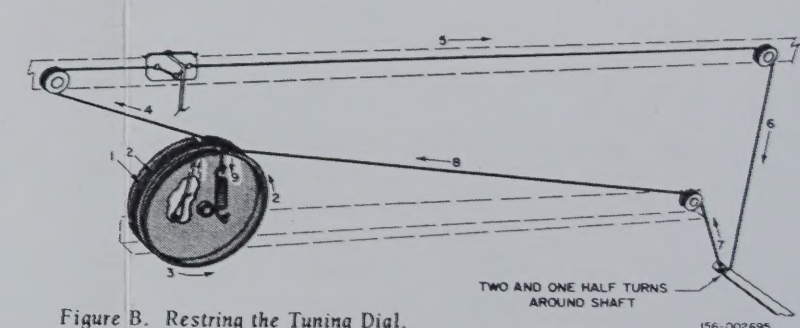


Figure B. Restringing the Tuning Dial.



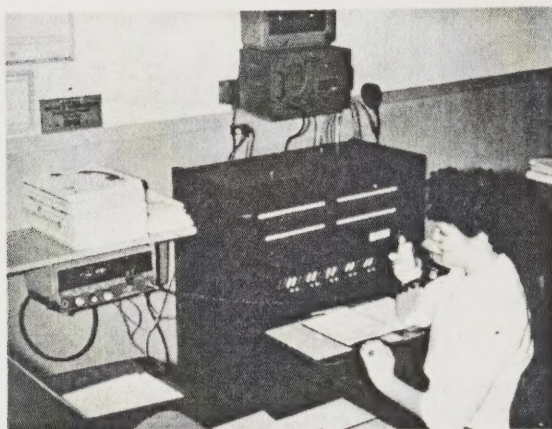


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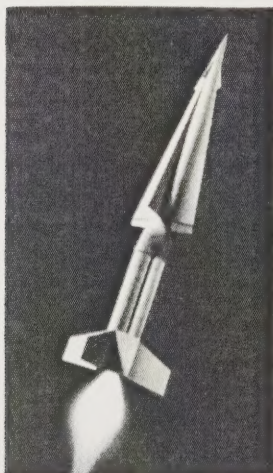
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